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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,502	09/23/2003	Atsushi Iisaka	2003_1315A	1911

513 7590 02/22/2006

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EXAMINER

MOON, SEOKYUN

ART UNIT	PAPER NUMBER
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2675

DATE MAILED: 02/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/667,502	Applicant(s) IISAKA ET AL.	
	Examiner Seokyun Moon	Art Unit 2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>09/23/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claims 9 and 10** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The limitation disclosed in claims 9 and 10, "*wherein the magnetic force of the second magnet portion is greater than that of the first magnetic portion*" and "*wherein the magnetic force of the second magnet portion is twice that of the each of the first magnetic portion*" are not consistent with the aspect of the invention disclosed in the specification [Pg. 21 Lines 1-4].

For further examination purpose, the claim limitations will be interpreted as "*wherein the magnetic force of the second magnet portion is greater than that of each of*

the first magnetic portion” for claim 9 and “*wherein the magnetic force of the second magnet portion is twice that of the each of the first magnetic portion*” for claim 10, to be consistent with the requirement of the invention as described in par. [0067].

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1-6 and 9-12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Keiji et al. (JP. Pub. No. 2002-140160, herein after referred to as “Keiji”) in view of Hiroaki et al. (JP. Pub. No. 09-282088, herein after referred to as “Hiroaki”).

As to **claim 1**, Keiji teaches a trackball for inputting operation information to electronic devices [TECHNICAL FIELD], comprising:

a ball portion (“ball 21”) [Drawing 4] magnetically coupleable in directions of a first axis (the axis formed by drawing a line between “*fixed magnetism member 32* and *34*”) and a second axis (the axis formed by drawing a line between “*fixed magnetism member 31* and *33*”), the first and second axes intersecting with each other at the center of the ball portion and orthogonal to each other;

a case portion (“case 22”) [Drawing 1] for enclosing the ball portion such that an upper portion of the ball portion is exposed.

a first magnet portion ("*fixed magnetism member 32 and 34*" and "*fixed magnetism member 31 and 33*") for stabilizing the ball portion at predetermined rotation angles (the surface formed by "*rod 26*" and "*rod 27*" being parallel to "*cover plate 24*") by magnetically coupling to the ball portion in one of the axial directions (the axis formed by drawing a line between "*fixed magnetism member 32 and 34*" and the axis formed by drawing a line between "*fixed magnetism member 31 and 33*") [*par. (0034)*].

Keiji does not teach a second magnet portion for attracting the ball portion in a direction orthogonal to a rotation axis of the ball portion, by magnetically coupling to the ball portion in the other one of the axial directions.

However, Hiroaki [*Drawing 9*] teaches a second magnet portion ("*permanent magnet 31*") for attracting the ball portion ("*trackball 1*") in a direction orthogonal to the surface of the "*case 13*".

It would have been obvious to one of ordinary skill in the art at the time of the invention to include Hiroaki's second magnet portion on a bottom-surface of the case which is below Keiji's "*ball 21*" so that the second magnet portion and the third bar member (*Keiji*: "*bar 28*") of Keiji are magnetically coupled each other, thus to support of Keiji's "*ball 21*" [*par. (0024)*, *par. (0025)*, and *par. (0027)*].

As to **claim 2**, Keiji as modified by Hiroaki [*Keiji*: *Drawing 1*] teaches the ball portion (*Keiji*: "*ball 21*") being magnetically coupleable in a direction of a third axis (*Keiji*: an axis formed by "*bar 28*" in a stationary state of the "*ball 21*" as shown in [*Drawing 1*]) intersecting with the first (*Keiji*: the axis formed by drawing a line between "*fixed magnetism member 32 and 34*") and second axes (*Keiji*: the axis formed by drawing a

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line between “fixed magnetism member 31 and 33”) at the center of the ball portion and orthogonal to the first and second axes [Keiji: Drawing 5] and the first magnet portion (Keiji: “fixed magnetism member 32 and 34” and “fixed magnetism member 31 and 33”) allowing each of any two axes (the axis formed by drawing a line between “fixed magnetism member 32 and 34”, the axis formed by drawing a line between “fixed magnetism member 31 and 33”, or an axis formed by “bar 28” in a stationary state of the “ball 21” as shown in [Keiji: Drawing 1]) which are present on a plane to serve as a rotation axis of the ball portion [Keiji: par. (0036)].

As to **claim 3**, Keiji as modified by Hiroaki [Keiji: Drawing 5 and Drawing 8] teaches the ball portion (Keiji: “ball 21”) comprising first (Keiji: “rod 26”), second (Keiji: “rod 27”), and third bar members (Keiji: “rod 28”) arranged on the first (Keiji: the axis formed by drawing a line between “fixed magnetism member 32 and 34”), second (Keiji: the axis formed by drawing a line between “fixed magnetism member 31 and 33”), third axes (Keiji: an axis formed by “bar 28” in a stationary state of the “ball 21” as shown in Drawing 1) respectively and made of an unmagnetized magnetic material [Keiji: par. (0027)], wherein:

the first magnet portion comprises:

a first fixed magnet portion (Keiji: “fixed magnetism member 32 and 34”) [Keiji: Drawing 4] made up of a pair of magnets for forming a first rotation axis by magnetically coupling to the first bar member (Keiji: “rod 26”) [Keiji: par. (0026)], the magnets being respectively fixed to side-surface of the case portion (“case 22”); and

a second fixed magnet portion (Keiji: "fixed magnetism member 31 and 33") made up of a pair of magnets for forming a second rotation axis by magnetically coupling to the second bar member (Keiji: "rod 27"), the magnets being respectively fixed to side-surfaces of the case portion; and

the second magnet portion comprises a third fixed magnet portion (Hiroakii: "permanent magnet 31") for attracting the third bar member (Keiji: "rod 28") by magnetically coupling to the third bar member, the third fixed magnet portion being fixed to a bottom-surface of the case portion [Hiroaki: *par. (0024)* and *par. (0027)*].

As to **claims 4 and 6**, Keiji discloses an even number of bar members ("rod 26" and "rod 27") arranged on an even number of axes respectively and made of an unmagnetized magnetic material [*par. (0027)*].

Keiji does not expressly disclose the even number of axes to intersect at an intersecting point of any two axes among the first to third axes which are present on the same plane, and at equal angles.

However, the courts have been held that a mere duplication of parts is generally recognized as being within the level of ordinary skill in the art [St. Regis Paper Co. v. Bemis Co., Inc., 193 U.S.P.Q. 8, 11 (7th Cir. 1977)].

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include an additional even number of bar members arranged on even number of axes at equal angles which are placed on a surface formed by any two axes among the first to third axes in Keiji's ball portion, and to include an additional

even number of pairs of fixed magnet portions forming an even number of axes in Keiji's case to provide a multiple stable stationary positions for the operation of Keiji's ball.

As to **claim 5**, Keiji teaches the case portion being made of an unmagnetized material [*par.* (0025)].

Keiji does not expressly disclose the case portion being made of an unmagnetized magnetic material.

Since applicant has failed to disclose that specifying the material used for the case portion being an unmagnetized magnetic material provides an advantage, is used for particular purpose, or solves a state problem, it is an obvious matter of design choice to specify the case portion being made of an unmagnetized magnetic material.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use any type of unmagnetized material, including an unmagnetized magnetic material, since any unmagnetized material would perform equally well at fixing the ball portion while the case does not interfere with the operation of the device.

As to **claims 9 and 10**, Keiji as modified by Hiroaki does not expressly disclose the magnetic force of the second magnet portion (*Hiroaki*: "permanent magnet 31") being greater than that of the first magnet portion (*Keiji*: "fixed magnetism member 32 and 34" and "fixed magnetism member 31 and 33").

However, it is required for the second magnet portion of the modified Keiji to exert a magnetic force equivalent to twice of the magnetic force of a part of the first magnet portion ("fixed magnetism member 31 or 32 or 33 or 34") to allow the second

magnet portion to provide the equivalent effect as the first magnet portion provides since the second magnet portion exert the magnetic force by itself while each of the first magnetic portion exert a magnetic force in a pair.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to specify the magnetic force of the second magnetic portion being twice that of the first magnetic portion to allow the device user to operate the ball portion in three axes equivalently.

As to **claim 11**, most of the claim limitations have already been discussed with respect to the rejection of claims 4 and 6 except for the case portion exposing the upper portion of the ball portion so as to restrict a rotation angle of the ball portion.

Keiji [Drawing 6] teaches the case portion ("case 22") exposing the upper portion of the ball portion ("ball 21") which restricts a rotation angle of the ball portion (by preventing the device user from accessing whole surface of the ball portion at a time).

As to **claim 12**, most of the claim limitations have already been discussed with respect to the rejection of claims 3 and 4 except for the case portion exposing the upper portion of the ball portion such that the ball portion rotates at an angle corresponding to an angle between the bar members.

The modified Keiji as discussed with respect to the rejection of claim 4 teaches the case portion ("case 22") exposing the upper portion of the ball portion ("ball 21") such that the ball portion rotates at an angle corresponding to an angle between the bar members ("rod 26", "rod 27", or "rod 28").

6. **Claims 7 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Keiji and Hiroaki as applied to claim 1 above, and further in view of Kermani et al. (U.S. Pat. No. 6,504,528 B1, herein after referred to as "Kermani").

The modified Keiji discussed with respect to the rejection of claim 6 does not disclose that the trackball (*Keiji*: "ball 21") to comprise means for switching in accordance with control parameters of the electronic devices between a presence and absence of a magnetic force of the third magnet portion.

However, Kermani [*fig. 5*] teaches means ("*varistor 126*") for switching in accordance with control parameters ("*current flow*") of a control device between a presence and absence of a magnetic force of a magnet portion ("*electromagnet 122*") used for a trackball [*col. 4 lines 12-32*].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the third magnetic portion of the modified Keiji to be switched between a presence and absence of a magnetic force in accordance with current flow controlled by the device user as taught by Kermani, to adjust the movement of the trackball and thus to optimize the operation of the control device including the trackball.

7. **Claims 13 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Keiji and Hiroaki as applied to claim 1 above, and further in view of Lachman (U.S. Pat. No. 5,021,771, herein after referred to as "Lachman").

As to **claims 13 and 14**, most of the claim limitations have already been discussed with respect to the rejection of claim 1 except for the trackball being mounted on a steering-wheel portion of the vehicle.

Keiji does not expressly disclose the trackball being mounted on steering-wheel portion of the vehicle.

However, Latchman [*fig. 4 and 5*] discloses a trackball being used for cursor control for a display device implemented in a car [*col. 6 lines 32-54*].

It would have been obvious to one of ordinary skill in the art at the time of the invention to use Keiji's trackball device on a steering wheel of a vehicle as a cursor control device for the display device implemented in a vehicle, as taught by Latchman, since display device implemented in a vehicle needs to show various selection for control of various electronic systems, in a screen, and thus requires a cursor control device to select the desired item and trackball is a known inputting device for cursor control.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Baker et al. (U.S. Pat. No. 6,501,458 B2) teaches an apparatus for transmitting a signal corresponding to a rotation of a spherical body.

Blonder (U.S. Pat. No. 5,620,371) teaches a computer track ball comprising a transparent outer sphere inside of which is disposed a second inner sphere.

Boldy (U.S. Pub. No. 2002/0084983 A1) teaches a cursor control device controlling the movement of a cursor on a computer display.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seokyun Moon whose telephone number is (571) 272-5552. The examiner can normally be reached on Mon - Fri (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Division 2629

2006/02/13
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